

multimedia-phone 101 or the IP-Web-phone 110 by utilizing a radio communication unit 121 having a Bluetooth module. A liquid-crystal display unit 123 is provided on an upper portion of the wireless mouse 120 in order to display a list of devices present near the wireless mouse 120. A mouse-function setting button 124 used when selecting a device displayed on the liquid-crystal display unit 123 is also provided in the wireless mouse 120. The mouse-function setting button 124 comprises a wheel. The user selects a device displayed on the liquid-crystal display unit 123 by rotating the wheel (the mouse-function setting button 124), and determines the selected device by depressing the wheel (the mouse-function setting button 124). Since the wireless mouse 120 is assumed to be used within a home, a non-contact-type optical sensor (not shown) is mounted therein so as to be able to be used at any place without using a mouse pad.

[0048] FIG. 2 is a block diagram illustrating the configuration of the wireless mouse 120.

[0049] The wireless mouse 120 includes a system controller 201, the radio communication unit 121 connected thereto, the display unit 123, the mouse-function setting button 124, a memory 205, a mouse-function realization unit 206, a microphone 207, a power supply 208, and an optical reading unit 209. The mouse-function realization unit 206 includes a click button and the like, and realizes the function of a pointing device for pointing an arbitrary portion on the picture surface of the monitor 104 or the like.

[0050] FIG. 3 illustrates the configuration and a reading operation of the optical reading unit 209 provided within the wireless mouse 120.

[0051] The optical reading unit 209 includes a high-brightness LED (light-emitting diode) 301, an image reading unit 305 and a DSP (digital

signal processor ) 306. The high-brightness LED 301 illuminates an image 302 by emitting light at a rate of 1,500 times per second. The image reading unit 305, comprising a photodetector or the like, receives reflected light in synchronization with the light emission, to read consecutive images 303 and 304.

[0052] The DSP 306 performs image correlation processing of converting changes of respective images into the movement of a mouse pointer on a screen for the read consecutive images 303 and 304, and calculates the moving direction and the moving distance. The calculated values correspond to the direction and the distance of the physical movement of the wireless mouse 120. Hence, the wireless mouse 120 does not require a particular mouse pad, and can calculate the moving direction and the moving distance of the mouse. Since the wireless mouse 120 incorporates the radio communication unit 121 and the non-contact-type optical sensor, it has large power consumption. Accordingly, the power supply 208 incorporates a charging unit, and can freely move to an energy-saving mode.

[0053] A procedure for operating peripheral devices (such as the multimedia-phone 101, the IP-Web-phone 110 and the like) using the wireless mouse 120 will now be described.

(Establishment of synchronization between the wireless mouse 120 and peripheral devices)

[0054] First, a description will be provided of a procedure for establishing synchronization in Bluetooth communication by the wireless mouse 120 and a peripheral device (the multimedia-phone 101), with reference to FIG. 4.

[0055] First, each of the wireless mouse 120 and the multimedia-phone 101 is in a standby state in which transmission/reception of any packet is not

performed (step S410).

[0056] When the DSP 306 of the wireless mouse 120 detects that the mouse-function setting button 124 has been depressed, the radio communication unit 121 of the wireless mouse 120, serving as a master, continuously broadcasts an IP packet 401 in order to recognize a device (the multimedia-phone 101, the IP-Web-phone 110 or the like), serving as a slave, that is present near the wireless mouse 120 (an inquiry state: step S411). An IAC (inquiry access code) is used as an access code for the IQ packet 401 transmitted in the inquiry state. Although two types of IACs (a GIAC (general IAC) which is an access code shared by all devices, and a DIAC (dedicated IAC) which is an access code shared only within a specific group) are present, any one of the two access codes may be used.

[0057] The multimedia-phone 101 which has received the IQ packet from the wireless mouse 120 repeatedly transmits an FHS packet 402 for transmitting the attributes (the type of the device, a Bluetooth address, a Bluetooth clock signal, and the like) to the wireless mouse 120 (the inquiry state: step S411).

[0058] The wireless mouse 120 transmits an ID packet 403 to the multimedia-phone 101 based on information of the FHS packet 402 received in the inquiry state (a page state: step S412). The wireless mouse 120 transmits an ID packet based on the Bluetooth address of the multimedia-phone 101 included within the FHS packet 402.

[0059] The multimedia-phone 101 which has received the ID packet 403 from the wireless mouse 120 notifies confirmation of reception by transmitting an ID packet 404, which is the same as the received ID packet 403, to the wireless mouse 120 (the page state: step S412).